

REMARKS

Claims 2-4 and 6-9 are pending in the present application, and are rejected.

Claim Rejections - 35 U.S.C. §102(b)

Claims 2-4 are rejected under 35 U.S.C. §102(b) as being anticipated by Vaartstra et al. (US 6,294,575). The Examiner asserts that the claims are reasonably and broadly construed as being disclosed by Vaartstra et al.

Applicants note that in order to anticipate the claims, the cited patent must teach each of the claimed limitations.

Applicants respectfully disagree with this rejection at least because the limitation with respect to the relative temperatures of the solvent, inert gas and ejected dry gas is not met by the cited patent.

Applicants note that claim 2 requires, in part, a dry gas being a mixture of an inert gas that is bubbled through an organic solvent at temperature T_1 to pick up solvent mist thus forming a dry gas, the dry gas being heated to temperature T_2 and sent to a jet for ejecting the dry gas, and ejecting the gas at temperature T_3 toward a substrate. The temperatures satisfy $T_1 \leq T_2 \leq T_3$, with T_3 being less than or equal to the boiling point of the organic solvent. Such temperatures ensure that the dry gas will contain micro-sized mist particles that will condense on the substrate and thereby displace a maximum amount of water from the substrate.

The Examiner asserts that Vaartstra et al. meets the above temperature profile. However, the Examiner's own description of the process of Vaartstra et al. shows that such is not the case.

The Examiner indicates on page 3 that the temperature limitations are met because, "once heat is applied to the vapor generating unit the temperature of the vapor gas mixture lowers continually to less than the boiling point of the disclose organic solvent since it necessarily follows that *no heat is further applied after the disclosed vapor generating stage* and thermodynamically temperature will drop if no more heat is applied in the disclosed method." (Emphasis added.)

In Vaartstra et al. the heat is provided by the heated inert gas heading into the vapor generating unit (abstract). It is the heat of the incoming inert gas that is used to vaporize the solvent to form a vapor. Since no heat is added after the vapor generating unit of Vaartstra et al., the temperature profile can not be $T_1 \leq T_2 \leq T_3$, but rather $T_1 > T_2 > T_3$, since the heat will be lost along the pathway. There is no teaching or suggestion for the arrangement of heater in the present invention such as will achieve an increasing temperature profile of $T_1 \leq T_2 \leq T_3$. Therefore, since at least this limitation is not taught or even suggested by the cited Vaartstra et al., Applicants respectfully traverse the rejections over Vaartstra et al.

Similar to the above discussion of claim 2, the equivalent temperature profiles of claim 3, which require $T_1 \leq T_2' \leq T_4 \leq T_2'' \leq T_3 \leq$ boiling point of organic solvent as noted in the claims, would instead be $T_1 > T_2' > T_4 > T_2'' > T_3$ in Vaartstra et al.

Further with respect to both claims 2 and 3, the limitation of the organic solvent mist of submicron size in the present invention being less than 1 μm is not taught by either of the cited references.

Claim 6 is rejected under 35 U.S.C. §102(b) as being anticipated by Ichiko et al. (US 5,950,328). The Examiner asserts that the claims are reasonably and broadly construed as being disclosed by Vaartstra et al. as comprising the limitations of claim 6.

Applicants respectfully disagree with this rejection over Ichiko et al. for essentially the same reason as in the disagreement with the rejection over Vaartstra et al.

The Examiner indicates that the temperature limitations are met by Ichiko et al. because, “once heat is applied to the vapor generating unit the temperature of the vapor gas mixture lowers continually to less than the boiling point of the disclose organic solvent since it necessarily follows that *no heat is further applied after the disclosed vapor generating stage* and thermodynamically temperature will drop if no more heat is applied in the disclosed method.” (Emphasis added.) This is the same language as used in the rejection over Vaartstra et al.

In Ichiko et al., the heat is provided by in the vapor generating unit. Even if one charitably ascribed the blower of Ichiko et al. the equivalent of the jets of the present invention, since no heat is added after the vapor generating unit of Ichiko et al., the temperature profile will not be $T_1 \leq T_2 \leq T_3$, but rather $T_1 > T_2 > T_3$, since the heat will be lost along the pathway. There is no teaching or suggestion for the arrangement of heater in the present invention such as will achieve an increasing temperature profile of $T_1 \leq T_2 \leq T_3$. Therefore, since at least this limitation

is not taught or even suggested by the cited Ichiko et al., Applicants respectfully traverse the rejections over Ichiko et al.

Claim Rejections - 35 U.S.C. §103(a)

Claim 9 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ichiko et al. in view of Vaartstra et al. The Examiner asserts that Ichiko discloses the claimed invention, as rejected above, except for the claimed organic solvent being at least one kind selected from a group including isopropyl alcohol, diacetone alcohol, 1-methoxy-2-propanol, ethyl glycol, 1-propanol, 2-propanol, and tetrahydrofuran, and said inert gas being at least one kind selected from a group including nitrogen, argon, and helium.

The Examiner concludes that it would have been obvious to combine the teachings of Ichiko et al. with the organic solvent being at least one kind selected from a group including isopropyl alcohol, diacetone alcohol, 1-methoxy-2-propanol, ethyl glycol, 1-propanol, 2-propanol, and tetrahydrofuran, and said inert gas being at least one kind selected from a group including nitrogen, argon, and helium as disclosed in Vaartstra in order to provide an organic solvent cleaning/rinsing fluid to maintain a clean substrate and insert gas for continuing the clean environment.

Applicants respectfully disagree with the rejection of claim 9 for the same reason as in the disagreement with the rejection of independent claim 6. Because the cited references fail to include the heater arrangement sufficient to achieve a temperature profile of $T_1 \leq T_2 \leq T_3$ as

noted in the above discussion of claim 6, and since claim 9 includes at least the limitations of either claim 6 or allowable claim 7, claim 9 should allowable as well.

Therefore, Applicants respectfully traverse the rejections without substantive amendment of the claims.

In view of the aforementioned remarks, Applicants submit that that the claims are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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